

ELECTRICAL WIRING FOR THE HOME

PLANNING, SELECTION & INSTALLATION POINTS

NOTES

ADEQUATE, SAFE WIRING:

- Reduces hazards to family, livestock & property
- Permits equipment to operate speedily, satisfactorily
- Keeps operating cost of equipment low
- Makes arrangement and use of equipment easy
- Removes probable rewiring later at considerable expense
- Provides for equipment additions without major changes
- Eliminates need for extension cords

GOOD WIRING ASSURES GOOD RESULTS:

Heating Equipment: Lighting:

- Rapid heating Lights burn brightly
- Lower current cost Fewer blinking lights
- Safety, continuity Convenience of control

Motors:

- Faster starting Fewer blown fuses
- Maximum power Less tripping of breakers
- Cooler operation Less heating of wires
- Increased life Less damage of insulation
- Fewer burn outs Plenty of outlets, controls
- Lower current cost Fewer shorts, fires, shocks

BEFORE PLANNING THE WIRING:

- Study bulletins on wiring, lighting
- Learn home and farm uses of electricity
- Consider present and future usage
- List equipment you may have in 10 years
- Study plans for good arrangement of:

- Kitchen Laundry
- Bathroom Workroom

- Decide where you will place equipment
- Think about rearrangement of furniture
- Learn approximate cost of various type outlets
- Learn methods of financing wiring

IN PLANNING THE WIRING:

- Allow 2 to 5% of total cost of building
- Make a rough plan for your wiring layout
- Discuss plan with family, co-op personnel, wiremen
- Secure more than one bid on exactly same plan
- Choose a reliable wireman
- Mark exact location* of outlets, switches & lights on walls; or make floor plan & mark

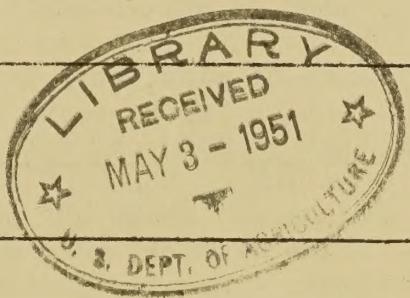
IN WIRING, INSTALLATION SHALL CONFORM WITH:

- National Electrical Code
- Local power supplier's requirements
- Local and state regulations
- Your own requirements for use

AFTER WIRING:

- Have wireman label circuits in load center
- Have wiring inspected
- Pay not over 80% of wiring cost until wiring is inspected and approved

*Use chalk or 3x5 cards and thumbtacks.



ADEQUATE WIRING PROVIDES:

Enough convenience outlets, lights and switches

Enough circuits of right-size wire

General purpose or 15 amp

Appliance or 20 amp

Individual appliance

Adequate entrance for electric service

3-wire (115/230 volt) for full use

Breaker or fuse box (minimum of 60 amps)

with spare circuits for later expansion

ENOUGH OUTLETS (proper type to serve use,

& in right place - cords are 6' usually):

1 duplex outlet for every 12' of wall

1 duplex outlet for any shorter usable space

Appliance outlet at each working area

(or one for every 4' of counter space)

Appliance outlets in dining areas - no place

along wall more than 10' from an outlet

Heavy-duty outlets for 115/230 v equipment

3-pole grounding outlets for laundry equipment

Not less than 2 duplex outlets in any room

Weatherproof outlets on porches, outdoors

LOCATION OF OUTLETS:

Kitchen & most workroom outlets 40 - 42" above floor

Washer outlet may be suspended rigidly from ceiling;

iron outlet 36" above ironing board

Other outlets - 18" above floor (may be in or

just above baseboard; in switch plate except

in kitchen, dining room, laundry or workroom)

Outlet near homemaker's dining chair

Bathroom outlets - high & away from tub and lavatory

ENOUGH SWITCHES:

3- or 4-way toggle switches or low-voltage switches*

at most-used room and hallway entries unless

entrances are closer together than 10'

Switches at top and bottom of stairways

Wall-switch for bathroom mirror lights

Wall-switch for lights at sinks, lavatories

ENOUGH LIGHTING OUTLETS:

Ceiling light in each room (except possibly bath-

room less than 60 sq. ft. with mirror lights) or

lamp on switch-controlled duplex outlet

Two ceiling fixtures in rooms twice as long as wide

Light at sink, work areas, bathroom mirror

Light on porch, in halls & most closets

Light at head and foot of stairways

LOCATION OF HOUSE SWITCHES, LIGHTS:

Switches - about 48" above floor, on lock

side of door, near door

Lights - usually centered in ceiling; may

be centered over working areas

Wall brackets - usually 5' 8" above floor &

paired (about 30" apart in bathroom)

*For 2 entrances - use 2 3-way switches. For 3 entrances - use 2 3-way & 1 4-way. For 4 entrances - use 2 3-way & 2 4-way. Or use low-voltage switches at any or all entries.

IN BUYING SWITCHES, OUTLETS, PLATES:
 Choose ivory equipment for light walls
 Buy good quality equipment

- UL approved
- T-rated switches
- Double-wipe contacts
- Weigh special features vs. cost
- Mercury switches for quietness
- Pilot light to show current on or off
- Small luminous spot showing location

WIRING PROTECTIVE DEVICES:

Circuit breakers:

- Magnetic, or
- Combination (magnetic & thermal)
- Thermal element provides time delay on temporary overload, as in starting motors
- Magnetic element opens breaker instantly on very heavy overloads or short circuits

Fuses - with or without time-lag features:

- Type S (tamper-resisting)
- Ordinary plug fuse (not recommended)
- Cartridge fuse (one-time fuse preferable)

ADVANTAGES OF CIRCUIT BREAKERS:

- Easy to use - flip of breaker closes circuit
- No waiting for someone to change fuses
- Never out of fuses - nothing to replace
- Safe - service restored by switch-like device
- Wrong-size protection cannot be substituted
- No fire hazards from make-shift substitutes
- No shocks in damp places or from poor use
- Long-lasting - lasts the lifetime of a house
- Attractive enough to put in kitchen or halls

PROVIDE CIRCUITS OF FOLLOWING TYPES:

Name	Location & Use of Circuit	No. Needed
General purpose (15 amp)	Lights & outlets in living, bath & bedrooms, halls; lights in workrooms; fixtures, portable lamps, radios, small appliances	1 for each 500 sq. ft. floor space of house
Appliance (20 amp)	Kitchen, laundry, workroom and dining room appliances (Not for lights - use 15 amp)	2 or 3 per house*
Individual appliance or special purpose	Kitchen, laundry, workroom & utility or furnace room, occasionally attic & bath. See list of equipment, p 4	1 for range 1 for water heater See list
Spare or extra	Breaker or fuse box with space for future expansion	1 minimum, 2 preferable

*Two for house under 1500 sq. ft. area.
 3 or more if house is over 1500 sq. ft.

INDIVIDUAL CIRCUITS:

<u>Required for:</u>	<u>Desirable for:</u>
Range and/or	Home freezer
Water heater	Automatic washer
Furnace equipment	Air-cooling unit
Electric furnace	Bathroom heater
Built-in heaters	Work shop or bench
Ironer	Dishwasher
Clothes dryer	Motors over 1/3 hp

WIRING REQUIREMENTS:

Type of circuit	Wire Size	Fuse-* Amps	Circuit Voltage	Capacity in Watts
General purpose	14	15	115	1725
	12	15	115	1725
Appliance	12	20	115	2300
Individual special appliances	12	20	115	2300
	10	30	115	3450
Range	8	40	115/230	4600-9200
	6	55	115/230	6325-12650

WHEN CHANGING A FUSE:

1. Disconnect the appliance you believe caused the fuse to blow
2. Open the main switch
3. Find out which fuse has blown
4. Remove blown fuse
5. Replace with new fuse of proper size
6. Close the main switch

Remember to stand on dry board when changing fuse. Keep face from being directly in front of fuse.

UL APPROVAL MEANS SAFE ELECTRICALLY: LOOK FOR:

UL labels

Listing in "List of Inspected Electrical Equipment," published by UL, Chicago

Listing in Card Reports in UL Offices in Chicago, New York, San Francisco and in inspection bureaus in 200 cities

GROUND PERMANENTLY CONNECTED EQUIPMENT BY:

3-wire cord and polarized outlet

Bare or insulated wire from equipment frame to metal water pipes that are bonded to ground wire, or connect wire directly to ground rod

ADVANTAGES OF GOOD WIRING DESIGN:

Saving of time, energy, temper & money

Convenient location of equipment

Efficient operation of equipment

Expansion of use as years pass

Safety - fire and shock protection

Lower insurance rate on property

Higher resale or loan value for property

*Over-current protection - either fuse or breaker.